

AMENDMENTS TO THE SPECIFICATION

Please enter the following amendments to the Specification.

I. On page 9, please replace the paragraph beginning on line 10 and ending on line 25 with the following paragraph:

Those skilled in the art will also be aware of the utility of a centralizer that allows the tubing string to rotate relative to the bow springs at any desired time, regardless of whether the bow springs are in the first, uncompressed position or the second, compressed position. Referring now to Figs. 9 - 12, four embodiments of such centralizers are shown at reference numerals 56, 58, 60, and 64, respectively. Again, like parts shown in Figs. 7 - 8, the component parts of the rotating bow spring centralizers shown in Figs. 9 - 12 are numbered in accordance with the reference numerals of the embodiments shown in Figs. 1 - 6. In the embodiment shown in Fig. 9, the assembly comprised of the bow springs 20 and collars 24, 26 is mounted to body 12 and retained thereon by engagement of the opposed margins 42 of collars 24, 26 with the shoulders 62 on the O.D. of body 12. The centralizer 58 shown in Fig. 9 functions to centralize the tubing string (not shown) in a borehole in the same manner as the embodiments shown in Figs. 1 - 8, but the assembly comprised of bow springs 20 and collars 24, 26 is free to rotate around the body 12 at all times, thereby allowing rotation of the tubing string, regardless of whether the bow springs 20 are in the first or second positions, while maintaining the required stand-off from the I.D. of the borehole.

Pursuant to 37 C.F.R. 1.121(b)(ii), the marked-up version of the above paragraph is as follows:

Those skilled in the art will also be aware of the utility of a centralizer that allows the tubing string to rotate relative to the bow springs at any desired time, regardless of whether the bow springs are in the first, uncompressed position or the second, compressed position. Referring now to Figs. 9 - 12, four embodiments of such centralizers are shown at reference numerals 56, 58, 60, and 64, respectively. Again, like parts shown in Figs. 7 - 8, the component parts of the rotating bow spring centralizers shown in Figs. 9 - 12 are numbered in accordance with the reference numerals of the embodiments shown in Figs. 1 - 6. In the embodiment shown in Fig. 9, the assembly comprised of the bow springs 20 and collars 24, 26 is mounted to body 12 and retained thereon by engagement of the opposed margins 42 of collars 24, 26 with the shoulders 62 on the O.D. of body 12. The centralizer 58 56 shown in Fig. 9 functions to centralize the tubing string (not shown) in a borehole in the same manner as the embodiments shown in Figs. 1 - 8, but the assembly comprised of bow springs 20 and collars 24, 26 is free to rotate around the body 12 at all times, thereby allowing rotation of the tubing string, regardless of whether the bow springs 20 are in the first or second positions, while maintaining the required stand-off from the I.D. of the borehole.

II. On page 12, please replace the paragraph beginning on line 10 and ending on line 15 with the following paragraph:

Those skilled in the art who have the benefit of this disclosure will recognize that the reduced diameter portions 125 of collars 124, 126, and the notches 154, need not be formed in the opposed margins 142 of collars 124, 126. The centralizer of the present invention will also function for its intended purpose if the reduced diameter portions 125 of collars 124, 126, and the notches 154, are formed in the ends of collars 124, 126 opposite the opposed margins 142.

Pursuant to 37 C.F.R. 1.121(b)(ii), the marked-up version of the above paragraph is as follows:

Those skilled in the art who have the benefit of this disclosure will recognize that the reduced diameter portions 125 of collars 124, 126, and the notches 154, need not be formed in the opposed margins 142 of collars 124, 126. The centralizer of the present invention will also function for its intended purpose if the reduced diameter portions 125 of collars 12124, 126, and the notches 154, are formed in the ends of collars 124, 126 opposite the opposed margins 142.

III. On page 12-13, please replace the paragraph beginning on line 30 of page 12 and ending on line 15 of page 13 with the following paragraph:

In the embodiment shown in Figs. 13-14, as with the centralizers 56, 58, 60, and 64 shown in Figs. 9 - 12, the rotating bow spring assembly (comprised of collars 124, 126 and bow springs 120) may be spaced longitudinally on the sub 112 from a set of vanes (not shown) on the O.D. of sub 112. The centralizer 110 is retained in this longitudinally spaced position on sub 112 by engagement of the shoulders 162 formed on sub 112 by the grooves 118 in the I.D. of collars 124, 126 in the manner described above. Because of the presence of both the bow springs 120 and the vanes (not shown), the embodiment 110 shown in Figs. 13 and 14 is capable of performing in the same manner as the embodiment shown in Figs. 1 – 6 to maintain fluid flow and stand-off from the I.D. of the borehole, but has the additional advantage of allowing rotation of the centralizer 110 (and hence a tubing string) relative to sub 112. Those skilled in the art who have the benefit of this disclosure will recognize that in a manner similar to that described above in connection with the embodiment 60 shown in Fig. 11, the vanes of the sub 112 may be angled and spiraled so as to "turbulate" fluid flow past centralizer 110, thereby assisting in maintaining fluid flow in the borehole.

Pursuant to 37 C.F.R. 1.121(b)(ii), the marked-up version of the above paragraph is as follows:

In the embodiment shown in Figs. 13-14, as with the centralizers 56, 58, 60, and 64 shown in Figs. 9 - 12, the rotating bow spring assembly (comprised of collars 124, 126 and bow springs 120) may be spaced longitudinally on the sub 112 from a set of vanes (not shown) on the O.D. of sub 112. The centralizer 110 is retained in this longitudinally spaced position on sub 112 by engagement of the shoulders 162 formed on sub 112 by the grooves 118 in the I.D. of collars 124, 126 in the manner described above. Because of the presence of both the bow springs 120 and the vanes ~~136~~(not shown), the embodiment 110 shown in Figs. 13 and 14 is capable of performing in the same manner as the embodiment shown in Figs. 1 – 6 to maintain fluid flow and stand-off from the I.D. of the borehole, but has the additional advantage of allowing rotation of the centralizer 110 (and hence a tubing string) relative to sub 112. Those skilled in the art who have the benefit of this disclosure will recognize that in a manner similar to that described above in connection with the embodiment 60 shown in Fig. 11, the vanes of the sub 112 may be angled and spiraled so as to “turbulate” fluid flow past centralizer 110, thereby assisting in maintaining fluid flow in the borehole.